



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,741	10/22/2001	Shin-Ichi Yamaguchi		6398

7590

09/02/2004

William Squire, Esq.  
Carella, Byrne, Bain, Gilfillan, Cecchi,  
Stewart & Olstein  
6 Becker Farm Road  
Roseland, NJ 07068-1739

EXAMINER
----------

GOFF II, JOHN L

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 09/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/032,741	Applicant(s) YAMAGUCHI ET AL.	
	Examiner John L. Goff	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2, 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is in response to the After-Final Amendment filed on 7/6/04. It is noted the Petition to withdraw Finality has been granted. In view of this the After-Final Amendment filed 7/6/04 has been entered. The After-Final Amendment amends claim 2 to require adhering the rubber sheet and seamless substrate film during the laying up step. The claims considered prior to the previous Final Rejection, those submitted in the amendment filed 6/27/03, required forming a “composite” during the laying up step. The term “composite” merely requires “A structure or entity made up of distinct components”, and thus, clearly does not require the components to be adhered. Thus, by entry of the After-Final Amendment filed on 7/6/04 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

Regarding the argument applicants use of the term “composite” required the rubber sheet and seamless substrate film to be adhered and as such the After-Final Amendment filed on 7/6/04 does not present any new issues, it is noted the original claims required a cylindrical “laminate”. In the first office action mailed 5/2/03 a 35 USC 112 second paragraph rejection was made wherein it was noted claim 2 was indefinite because the claim required “forming said solid rubber sheet and a seamless substrate film into a laminated cylindrical shape” and also (subsequently) required “applying a pneumatic pressure to said laminated cylinder for vulcanizing said solid rubber sheet and for adhering said solid rubber sheet to said substrate so as to form said laminated cylinder in one piece”. Thus, claim 2 appeared to require vulcanizing in order to adhere the solid rubber sheet to the substrate and form the laminated cylinder in one

Art Unit: 1733

piece. It was noted in the rejection "It appears the rubber sheet and seamless substrate film are laminated, i.e. adhered, to one another in the applying step and not in the forming step. It is suggested to delete "laminated" in lines 4 and 5 for clarity." (Emphasis added). In the response to the first office action filed 6/27/03 applicant amended claim 2 and the specification to delete "lamine" and insert therein "composite" and noted "Amendment is made to the specification and certain of the claims in the interest of clarity and consistency and to meet the objections based on formal matters" (Emphasis added). Applicant did not comment on the claims requiring any type of adhering step prior to vulcanizing other than to note "As claimed the pneumatic pressure both vulcanizes the rubber sheet at its abutting ends and adheres the rubber sheet to the seamless substrate film in the same step. Thus both vulcanizing and the adhering lamination to the substrate film are performed simultaneously to these materials." (Emphasis added). Thus, by not commenting on the 35 USC 112 rejection in any manner other than the above applicants clearly did not intend for term "composite" to require any type of adhering. Furthermore, it is noted a second non-final rejection was made 9/16/03, and in the response to that action filed 12/8/03 again applicant did not argue that any type of adhering occurred in any step other than the vulcanizing step.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Specification***

3. The disclosure is objected to because of the following informalities: Applicant has amended claim 2 to require "laying said solid rubber sheet onto a seamless substrate film... and

Art Unit: 1733

adhering the rubber sheet to the seamless substrate film to form a cylindrical laminate”. Support for adhering the rubber sheet to the seamless substrate film is found in paragraph 6 of the original specification. In the amendment submitted by applicant on 12/6/03 this paragraph was removed from the specification. Applicant should re-insert original paragraph 6 to provide proper support for the amended claim.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 2 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 2 requires “laying said solid rubber sheet onto a seamless substrate film... and adhering the rubber sheet to the seamless substrate film to form a cylindrical laminate”, and claim 2 further requires “applying a pneumatic pressure to said cylindrical laminate for vulcanizing said rubber sheet and for adhering said rubber sheet to said substrate film to form a one piece laminated cylinder”. It is clear how the rubber sheet and substrate film are adhered during vulcanization. However, what is not clear is how the rubber sheet and substrate film are adhered during the laying up step. While the claim positively requires performing an adhering step when forming the lay-up, the specification does not describe in any manner how to perform

the adhering, and thus, it is unclear how one skilled in the art could perform the invention as described.

6. Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 requires “laying said solid rubber sheet onto a seamless substrate film... and adhering the rubber sheet to the seamless substrate film to form a cylindrical laminate”, and claim 2 further requires “applying a pneumatic pressure to said cylindrical laminate for vulcanizing said rubber sheet and for adhering said rubber sheet to said substrate film to form a one piece laminated cylinder”. It is unclear how the rubber sheet and film are adhered in both the laying up step and the vulcanizing step. The claim positively requires performing an adhering step when forming the lay-up, i.e. the “adhering” is not merely a result of contacting the rubber sheet and film. What does adhering when forming the lay-up require? Furthermore, if pneumatic pressure is required for “adhering said rubber sheet to said substrate film to form a one piece laminated cylinder”, how then can the rubber sheet and film be adhered to form a cylindrical laminate during the lay-up stage?

#### ***Claim Rejections - 35 USC § 103***

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 1733

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood (U.S. Patent 5,733,399) in view of Straughan (U.S. Patent 3,455,758) and Bliss (U.S. Patent 3,964,846).

Wood discloses a method for manufacturing a drive belt. Wood teaches the method comprises providing an expandable mandrel, i.e. a core mold comprising a diaphragm expandable by pneumatic pressure, placing on the mandrel a lay-up comprising a top elastomer (i.e. rubber) sheet, a barrier film (e.g. plastic or elastomer film), a tooth stock elastomer sheet, belt cords, and a top tooth facing fabric, placing the expandable mandrel within an outer casing mold, and applying heat and pneumatic pressure to vulcanize the elastomer sheets and adhere all of the components together (Figures 1 and 7-10 and Column 1, lines 30-34 and Column 2, lines 62-65 and Column 5, lines 43-45 and Column 6, lines 65-67 and Column 7, lines 1-7). Wood does not specifically recite the ends of each component in the lay-up as abutted together.

However, it appears it is intrinsic to Wood that the ends are abutted together to form an endless drive belt having the same dimensions, e.g. thickness, throughout. In any event it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the ends of the lay-up on the mandrel taught by Wood in an abutting relationship to form an endless drive belt having accurate dimensions throughout as was well known and conventional in the art as shown for example by Straughan. Additionally, Woods does not specifically recite forming the lay-up prior to placing the components on the mandrel. However, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to form the components into the lay-up prior to placing the components on the mandrel as this was a well

known and conventional technique in the art for providing a belt lay-up on a mandrel prior to vulcanizing (e.g. for reasons such as forming belts of different internal diameters) as shown for example by Bliss. Further, Wood does not specifically recite the elastomer sheet and barrier film adhere to one another when forming the lay-up. However, the materials, i.e. elastomer sheet and barrier film, taught by Wood are the same as those claimed and they are consistent and in agreement with applicants specification (See paragraph 55 of the specification) such that the materials taught by Wood would intrinsically adhere in the same manner as applicants such that the limitation is met, it being noted as argued by applicant the claimed "adhering" when forming the lay-up is merely by "physical phenomena" and no adhesive or other bonding medium is used (See page 5, last paragraph and page 6, first paragraph of the After-Final Response filed 7/6/04).

Straughan disclose a method for manufacturing an endless belt, e.g. a drive belt. Straughan teaches, "In such belts and in other similar products it is necessary that the belt surface be free from surface discontinuities such as are presented by lap joints such as exist when a sheet of polyester is wrapped several times around a mandrel or other support. The present invention provides a method for fabricating a tube or endless belt of Mylar (polyethylene terephthalate) polyester which is of uniform thickness throughout its length, which belt consists of two pieces of polyester wrapped one inside the other with their respective ends abutted as butt joints, diametrically opposite to one another" (Emphasis added) (Column 1, lines 31-42).

Bliss is directed to an apparatus for manufacturing endless belts, e.g. power transmission belts. Bliss teaches a cylindrical vulcanizing mold comprising an inner core mold comprising a diaphragm expandable by pneumatic pressure and an outer casing mold comprising a diaphragm expandable by pneumatic pressure. Bliss teaches forming a belt sleeve (i.e. a tubular preform)



Art Unit: 1733

comprising at least one rubber layer and at least one tensile reinforcement layer (substrate with small stretchability), positioning the belt sleeve around the inner core of the vulcanizing mold, closing the mold, and applying heat and pneumatic pressure (via the diaphragms) to vulcanize the rubber layer and form an endless belt (seamless cylinder) (Figures 1 and 2 and Column 1, lines 36-41, 43-45, and 48-50 and Column 2, lines 46-49 and 58-60 and Column 3, lines 37-41, 43-45, 54-56, 62-64, and 66-67 and Column 4, lines 6-8, 28-61, 37-39, and 45-47 and Column 5, lines 24-27).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Straughan, and Bliss as applied above in paragraph 8, and further in view of Fujiwara et al. (U.S. Patent 5,630,770).

Wood, Straughan, and Bliss teach all of the limitations in claim 4 as applied above except for a teaching of forming additional coating layer(s) on the outer surface, i.e. top tooth facing, of the endless belt. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form on the outer surface of the endless drive belt taught by Wood as modified by Straughan and Bliss a coated layer of silicon or fluorine resin as it was well known in the art to apply a coating of silicon or fluorine resin to the outer surface of an endless drive belt to reduce both the coefficient of friction of the outer surface and wear on the outer surface as shown for example by Fujiwara et al.

Fujiwara et al. disclose coatings, e.g. silicon or fluorine resins, applicable to the outer surface of an endless drive belt for reducing both the coefficient of friction of the outer surface and wear on the outer surface (Column 1, lines 7-12 and Column 2, lines 27-32 and Column 8, lines 49-57).

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ndebi et al. (U.S. Patent 6,217,964) in view of Bliss (Bliss is described above in paragraph 8).

Ndebi et al. disclose a method for manufacturing an endless, seamless image transfer belt. Ndebi et al. teach a method comprising providing a mandrel, placing on the mandrel a lay-up comprising an elastomer base ply, i.e. rubber sheet, and an endless, seamless plastic film with both substrates having their ends in an abutting relationship, wrapping the mandrel in a plastic sheet, i.e. outer casing mold, applying heat and pressure to vulcanize the elastomer sheet and adhere the elastomer base ply to the plastic film to form an endless, seamless belt, and unwrapping the outer plastic sheet to remove the belt (Figures 2, 6, and 7 and Column 5, lines 53-60 and Column 6, lines 6-9, 20-22, and 44-48). Ndebi et al. do not specifically recite using an outer casing mold having a pneumatic chamber (i.e. a diaphragm) for applying pressure. However, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to use as the outer casing mold taught by Ndebi et al. an outer casing mold having a pneumatic chamber as this was a well known alternative in the art for applying vulcanization and adhering pressure when forming a belt as shown for example by Bliss and only the expected results would be achieved. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the outer casing mold taught by Ndebi et al. an outer casing mold having a pneumatic chamber as shown for example by Bliss as the mold taught by Bliss is reusable as opposed to the disposable wrapping taught by Ndebi et al. Additionally, Ndebi et al. do not specifically recite forming the lay-up prior to placing the components on the mandrel. However, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to form the components into the lay-

up prior to placing the components on the mandrel as this was a well known and conventional technique in the art for providing a belt lay-up on a mandrel prior to vulcanizing (e.g. for reasons such as forming belts of different internal diameters) as shown for example by Bliss. Further, Ndebi et al. do not specifically recite the elastomer sheet and barrier film adhere to one another when forming the lay-up. However, the materials, i.e. elastomer sheet and barrier film, taught by Ndebi et al. are the same as those claimed and they are consistent and in agreement with applicants specification (See paragraph 55 of the specification) such that the materials taught by Ndebi et al. would intrinsically adhere in the same manner as applicants such that the limitation is met, it being noted as argued by applicant the claimed "adhering" when forming the lay-up is merely by "physical phenomena" and no adhesive or other bonding medium is used (See page 5, last paragraph and page 6, first paragraph of the After-Final Response filed 7/6/04).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ndebi et al. and Bliss as applied above in paragraph 10, and further in view of Shindo et al. (U.S. Patent 5,140,375).

Ndebi et al. and Bliss teach all of the limitations in claim 4 as applied above except for a teaching of forming additional coating layer(s) on the outer surface of the endless belt. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form on the outer surface of the endless belt taught by Ndebi et al. as modified by Bliss a coated layer of fluorine resin as it was well known in the art to apply a coating of fluorine resin to the outer surface of an endless belt to reduce the friction resistance of the outer surface.

Shindo et al. disclose coatings, e.g. fluorine resin, applicable to the outer surface of an endless drive belt for reducing the friction resistance of the outer surface (Column 6, lines 51-59).

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 2 and 4 have been considered but are moot in view of the new ground(s) of rejection. It is noted previously claim 2 was rejected over Wood in view of Straughan and either one of Ganser (U.S. Patent 3,834,257) or Bliss. Additionally, claim 2 was rejected over Ndebi et al. in view of Bliss and optionally Ganser. In view of applicants arguments Ganser (a reference used only in the alternative to Bliss) is withdrawn and as such applicants arguments regarding Ganser are moot. Also, in the response filed 12/8/03 applicant asked the Examiner to supply a reference in response to the taking of abutting the lay-up in Wood as well known. In response the Examiner cited Straughan. Applicant (in either of the After-Final responses filed 4/26/04 or 7/6/04) has not argued the combination of Wood in view of Straughan such that the Examiners position of it being obvious to abut the ends is acquiesced by applicant. Applicant argues, "Bliss is also cited for disclosing the two step process. This is also in error. In Bliss, the belt to be cured is first built up in a usual manner. Col. 3, lines 37-38. Bliss however does not state how the belt is built up or with what elements. Bliss does not state that the layers so formed form a laminate as claimed, i.e., the elements, much less a rubber sheet and film as claimed, are adhered physically to one another without additional elements. There is no basis in this reference to assume that no support structure is employed to build up the belt in the "usual manner". Further, the Bliss belt comprises different elements than

Art Unit: 1733

the claimed laminate comprising the rubber layer and film as claimed". It is noted Bliss is combined with Wood and Ndebi et al. merely to show the well known technique of forming the components of belt lay-up into a sleeve, i.e. a cylinder, prior to placement between the outer casing and core mold, it being noted Bliss is also used with Ndebi et al. to show the well known use of using a pneumatic chamber mold to vulcanize a belt. Column 3, lines 37-41 of Bliss state, "Power transmission belts to be cured with apparatus of the invention are first built up in the usual manner as a belt sleeve. The belt sleeve typically includes a first rubber layer, a spirally wound tensile cord, and a second rubber layer." Column 3, lines 62-64 of Bliss state "A belt sleeve or body 90 may then be positioned over the inner diaphragm or bladder 68". Thus, clearly Bliss shows forming the layers of the belt into a cylinder prior to placement between the outer casing and core mold.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1733

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

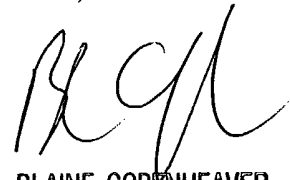
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff



BLAINE COPENHEAVER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700